

Annual Peak-Flow Frequency Analysis

For more information on the contents of this documentation, see Kessler and others (2013).

Streamgauge number and name:

05073600 South Branch Battle River at Northome, Minn.

Peak-flow information:

Number of systematic peak flows in record	26
Systematic period begins	1960
Systematic period ends	1985
Length of systematic record	26
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.33
Standard error of generalized skew	0.4266
Low-outlier method	Single Grubbs-Beck test

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
1.7099	0.2361	-0.282

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	20

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
1.7098	0.2364	-0.312

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	10.8	2.73	16.9
0.9900	12.8	3.85	19.1
0.9500	20.0	10.10	27.1
0.9000	25.1	15.30	32.8
0.8000	32.8	23.10	41.5
0.6667	41.5	31.50	51.9
0.5000	52.7	41.60	65.6
0.4292	58.0	46.20	72.4
0.2000	81.6	65.60	106.0
0.1000	101.0	80.60	140.0
0.0400	125.0	97.70	194.0
0.0200	143.0	109.00	244.0
0.0100	160.0	119.00	302.0
0.0050	178.0	127.00	368.0
0.0020	200.0	136.00	473.0

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

* Less than low-outlier threshold

Water	Peak	Peak-flow
year	flow	code
1960	5.7	*
1961	99.0	--
1962	68.0	--
1963	56.0	--
1964	24.0	--
1965	37.0	--
1966	40.0	--
1967	89.0	--
1968	36.0	--
1969	109.0	--
1970	84.0	--
1971	43.0	--
1972	46.0	--
1973	46.0	--
1974	75.0	--
1975	126.0	--
1976	34.0	--
1977	20.0	--
1978	50.0	--
1979	60.0	--
1980	28.0	--
1981	50.0	--
1982	96.0	--
1983	46.0	--
1984	42.0	--
1985	105.0	--